

What is claimed is

1. A method of transmitting a digital signal over an optical fiber link, said method comprising the steps of
 - modulating said digital signal onto an optical carrier using frequency shift keying modulation;
 - coupling said frequency modulated optical signal into an optical fiber;
 - at the receive side end of said optical fiber, demodulating the received optical signal to obtain said transmitted digital signal;

wherein

for said frequency shift keying modulation step, a modulation index $h < 1/2$ is used, and an optical power launched into the optical fiber is such that said fiber operates in a non-linear transmission regime to improve transmission characteristics, said modulation index h being defined as maximum frequency separation divided by the bitrate of said digital signal.

2. A method according to claim 1, wherein said modulation index h is in the range between $1/2$ and $1/4$.
3. A method according to claim 1, wherein said modulation index h is $1/3$.
4. An optical transmission system comprising an optical transmitter, an optical fiber and an optical receiver, wherein said fiber showing a non-linear transmission effect, said optical transmitter being adapted to modulate a

digital signal to be transmitted onto an optical carrier using frequency shift keying modulation,

wherein

said optical transmitter is adapted to use for said frequency shift keying modulation a modulation index $h < 1/2$, and an optical power launched into the optical fiber is such that said fiber operates in a non-linear transmission regime to improve transmission characteristics, said modulation index h being defined as maximum frequency separation divided by the bitrate of said digital signal.

5. An optical transmission system according to claim 4 further comprising an optical dispersion compensation module.

6. An optical transmission system according to claim 4, wherein said receiver comprising an optical filter to demodulate the optical signal.

7. An optical transmission system according to claim 6, wherein said optical filter is a Mach-Zehnder interferometer which two interferometer arms being coupled to corresponding photodiodes which are in turn coupled to a differential electrical receiver.

8. An optical transmitter for an optical transmission system, said optical transmitter being adapted to modulate a digital signal (DS) to be transmitted over an optical fiber link onto an optical carrier using frequency shift keying modulation,

wherein

said optical transmitter is adapted to use for said frequency shift keying modulation a modulation index $h < 1/2$, and an optical power launched into the optical fiber is such that said fiber operates in a non-linear transmission regime to improve transmission characteristics, said modulation index h being defined as maximum frequency separation divided by the bitrate of said digital signal.

9. An optical transmitter according to claim 8 comprising a directly modulated laser.